Nuclear Division News

A Newspaper for Employees of the Nuclear Division, Union Carbide Corporation

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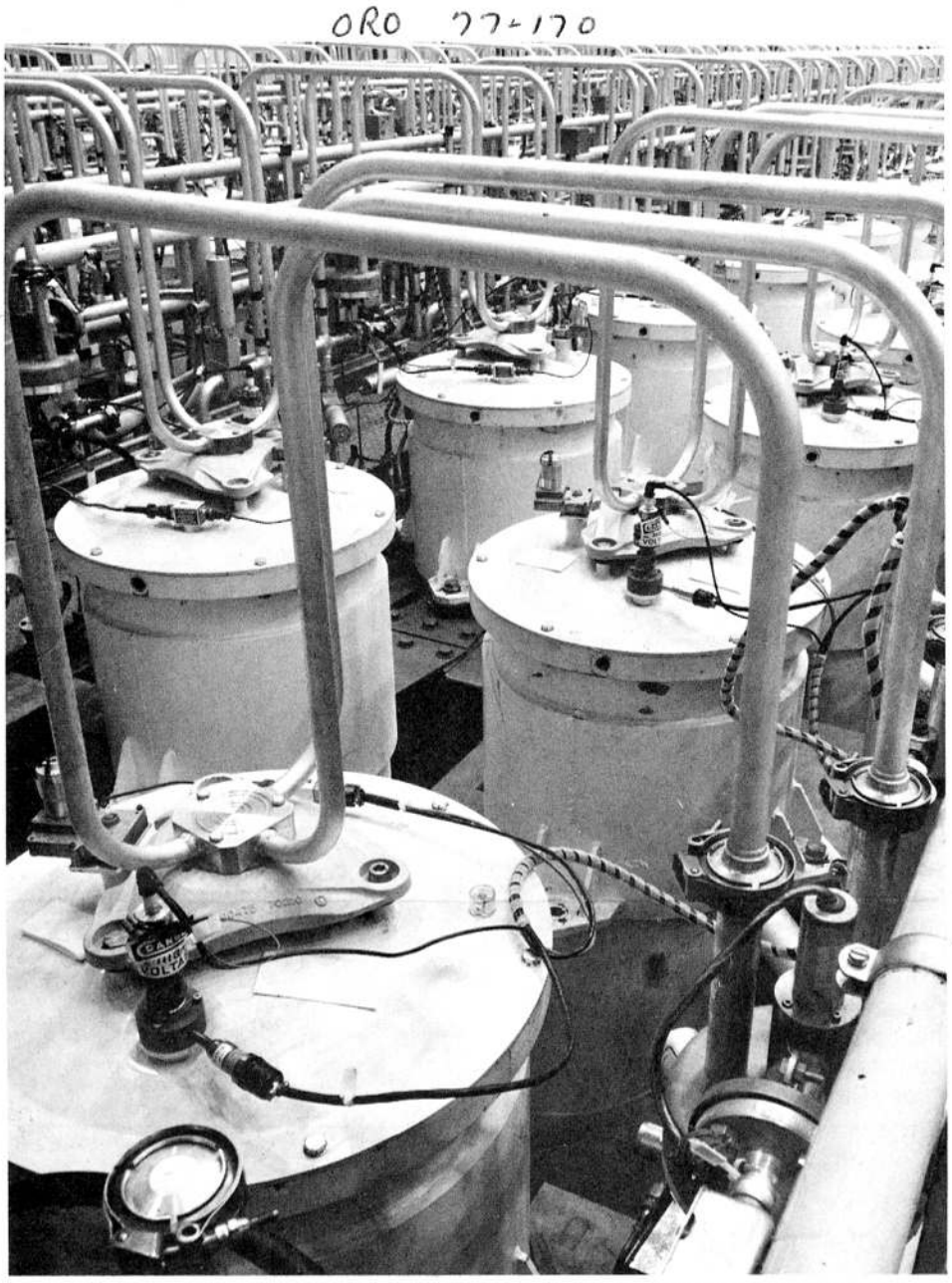
ORO 77-170



CENTRIFUGE DEVELOPMENT — This is the first photograph released of the centrifuge component test facility at ORGDP. The facility is a pilot cascade with second generation centrifuges. The centrifuge process for enriching uranium is expected to play an important role in future energy research.

PCRV researchers become Division's 'concrete experts'

Engineers at ORNL are exploring new applications of a component not usually associated with energy production: the concrete vessel.

J. Patrick Callahan, director of ORNL's Prestressed Concrete Reactor Vessel (PCRV) program, points out that concrete offers a number of attractive designs and engineering features for construction of the reactor and process vessels used in nuclear as well as non-nuclear energy systems. They can be made very large and of unusual shapes when necessary; they perform well from an operational safety standpoint; and they are easily fabricated on site, with relatively inexpensive materials.

Pressure vessels are the strong-walled containers which house the "process" part of a production system. In the case of a nuclear reactor, this usually includes the reactor core and the primary cooling system.

Wrapped with cables

A "prestressed" vessel is wrapped with steel tendons or cables during construction, so that it is precompressed. This is necessary because concrete by nature is much stronger under compression.

"The idea is to use steel to compress the concrete, so that it can take both the pressure load and strains caused by high temperatures," Callahan says. Stressing cables are installed using the "circumferential wire-winding technique," in which a motorized machine moves around the outside of the vessel and applies tension to the cables with a braking-type device.

The basic design of a concrete vessel permits it to fail — should the system's multiple independent pressure relief valves somehow fail to to operate — in a slow, predictable manner, by cracking vertically on the side wall and slowly venting whatever is contained. (ORNL tests have shown the vessels can withstand overpressures of more than twice normal operating pressure.)

"When a concrete vessel cracks," Callahan says, "it has failed from the standpoint of structural utility, according to accepted definitions. But in terms of safety, it's still a very significant structure, and continues to have capability to contain whatever is inside it. We have found in tests that as the pressure is relieved, the cracks can literally close up."

Contributed to Fort St. Vrain

ORNL interest in prestressed concrete vessels began during the development of gas-cooled nuclear reactors in the late 1950's. As designs progressed, it became apparent that state-of-the-art steel fabrication could not produce vessels of suitable size

(Please see page 2)

In this issue . . .

Three major appointments have been made in the Employee Relations staff. This story appears on page 5.

Other features:

- Question box, ORGDP promotions . . . . . page 3
- Paducah promotions . . . . . page 4
- Patent holders honored . . . . . page 5
- Dr. Lincoln . . . . . page 7

J. Q. Carbide reports distribution complete

Mailing of the J. Q. Carbide benefit report has been completed for all full-time employees on the active payroll who had at least one year of credited service on December 31, 1976. Employees who did not receive their copy of this personalized report should ask their Benefit Plans office to obtain one for them.

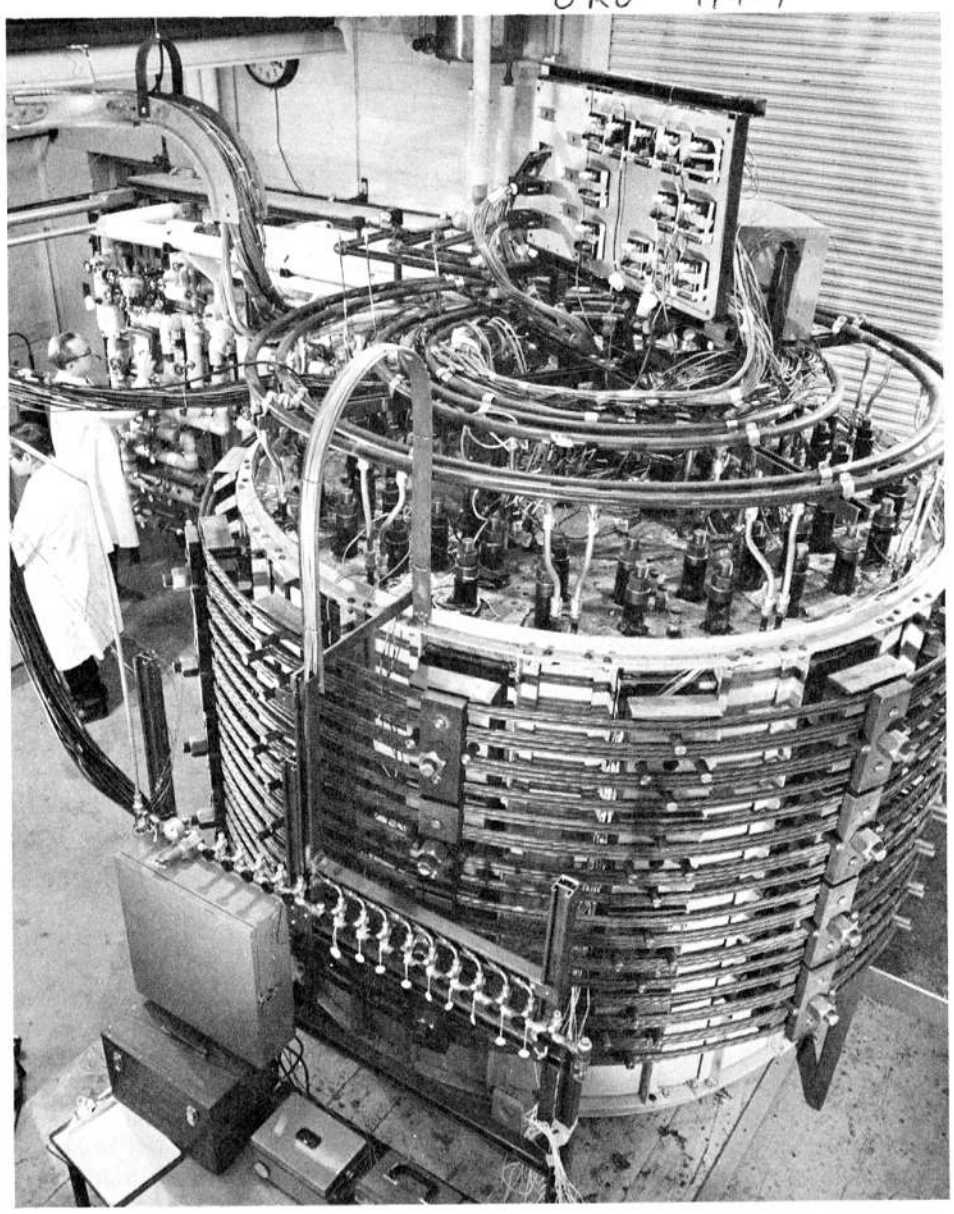
Since the report is based on the programs in which each employee is enrolled, the Medical and Dental Expense section does not show any figures if an employee is insured as a dependent of his or her spouse who also is an employee. If there is any doubt about whether or not an employee has dependent coverage under the spouse policy, the Benefit Plans office should be contacted.

Any other questions about the figures or their interpretations also should be directed to the Benefit Plans office.

17 2854

CONCRETE ENGINEERS—The staff of the Prestressed Concrete Reactor Vessel Program gathers for a "family portrait," surrounded by experimental concrete castings. From left to right are David Fanning, Charlie Hurtt, Barry Oland, Dominic Canonico, Pat Callahan, Dan Naus, Randy Nanstad, Bill Dodge and Grover Robinson.

ORO 119-9



PRESTRESSING VISIBLE—This photo of a laboratory model of a thermal cylinder for a gas-cooled reactor, taken in 1971, shows clearly the encircling prestressing cables. The researchers in the photo, Dan Curtis, left, and Malcolm Richardson, Engineering Technology Division, were with the PCRV staff at the time the photo was made.

'Concrete'

(Continued from page 1)

for the large volumes of gas used as the primary coolant in these reactor systems. French engineers initiated the practice of using prestressed concrete instead of steel.

The PCRV program was set up, first, to look at the characteristics of concrete, such as material behavior and temperature effects, and the problems these characteristics might present from a design standpoint; and second, to begin using modeling techniques in the design of vessels.

This pilot work contributed to design and construction of the first U.S. gas-cooled reactor to use a prestressed concrete pressure vessel — the Public Service Company of Colorado's Fort St. Vrain Nuclear Generating Station in Platteville, Colo., which went into operation in 1976.

The ORNL group then began to move into other phases of concrete study, including improvement of computer codes for analyzing concrete structures and experimental work in evaluating commercially developed instrumentation for measuring stress and strain.

Now in coal gasification

Now, with the Laboratory's growing involvement in non-nuclear research, conceptual designs have been prepared for the use of concrete vessels for coal gasification systems under development to convert coal, coke or char to a synthetic gaseous fuel.

The coal gasification study, using process information supplied by the developers, involved design work for two gasifier systems, called Synthane and Hygas. These systems require huge vessels, 150 to 250 feet high with approximately a 30-foot cross section — considerably taller than nuclear reactor vessels have been. Another design problem is the fact that the gasifier vessels must be accessible for maintenance and cleaning.

Other recent projects have included tests for the Clinch River Breeder Reactor project on the strength properties of concrete at temperatures up to 1400 degrees F; and analysis and modeling of a prestressed concrete vessel for the proposed U.S. gas-cooled fast breeder reactor.

In addition to Callahan, the PCRV program staff includes William Dodge, David Fanning, Dan Naus, Barry Oland, Grover Robinson, and Charles Hurtt of ORNL's Engineering Technology Division; and Dominic Canonico and Randy Nanstad of the Metals and Ceramics Division.

next issue . . .

The next issue will be dated May 26. The deadline is May 18.

The corporate world of Union Carbide . . .

The board of directors of Union Carbide has declared the corporation's 240th consecutive dividend of 70c a share payable on capital stock of record on May 6. The dividend is payable June 1.

This is the same dividend paid per share on March 1.

* * *

"Union Carbide expects a strong recovery in the second and third quarters as a consequence of both accelerating growth in the U.S. economy and market corrections to overcome the effects of the severe winter," William S. Sneath, chairman of the board, told stockholders at their meeting in Houston last month.

Commenting on the corporation's expansion program, Sneath said, "As the world economy grows, the performance of Union Carbide should begin to demonstrate the favorable consequences of our expansion program. We will achieve sales and profit levels that would not have been possible had we not strengthened our marketing and technology base."

* * *

Shareholders of Amchem Products, Inc. have voted to approve the merger of Amchem into a subsidiary of Union Carbide. Amchem Products, whose principal products include herbicides, plant growth regulators, hybrid seeds and metalworking chemicals, had sales last year of $120 million and a net income of $8.2 million.

It is expected that the Amchem line of products will be complementary to the corporation's own agricultural chemicals and other related businesses.

* * *

The start-up of a Linde Division cryogenic tank manufacturing plant at Theodore (near Mobile), Ala. is announced. This plant is one of three Union Carbide facilities in the nation to make special cryogenic tanks to hold super-cold liquified gases, such as oxygen, nitrogen, argon, hydrogen or helium. The plant, hiring 112 employees, most of whom come from the local area, is the largest cryogenic tank facility of its type in the free world.

* * *

Two new low-density polyethylene reactors, with a combined capacity of more than 400 million pounds a year, have begun operations at Union Carbide's Seadrift, Tex. plant. Completion of the multimillion dollar expansion project raises Union Carbide's total low-density polyethylene capacity of 1.5 billion pounds per year in the United States and Puerto Rico. The corporation is the world's largest producer of these resins which have wide application in the production of wire and cable coverings, films and packaging materials and molded plastic parts.

Named machining foreman in Y-12

Wilson

Ralph A. Wilson, Jr. has been promoted to a machining foreman in the Fabrication Division at Y-12.

A native of Knoxville, Wilson worked in several area shops before joining Union Carbide in 1948.

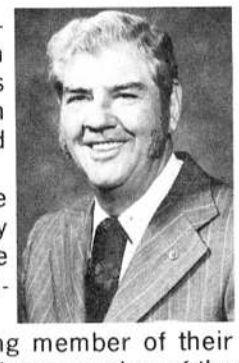
He lives in the Claxton Community and has two sons, Benny and Kenneth.

about people . . .

Donald A. Gardiner, head of the Mathematics and Statistics Research Department of the Computer Sciences Division has been elected an Ordinary Member of the International Statistical Institute. An ordinary member of the ISI is "a person distinguished for his contributions to the development or application of statistical methods or to the administration of statistical services."

The Institute, whose objective is to develop and improve statistical methods and their application throughout the world, has a membership of about 1000 statisticians. About 150 of these have been elected from the United States.

Gardiner joined Union Carbide in 1956. He is a Fellow of the American Statistical Association and a member of the Institute of Mathematical Statistics, the Biometric Society and Sigma Xi of which he is currently president of the Oak Ridge Chapter. Gardiner and his wife, Marie, reside at 108 Mason Lane in Oak Ridge.



W. Wiley Johnston Jr., a metrologist in the Instrumentation and Controls Division at ORNL, has been named a Fellow of the American Society for Testing and Materials (ASTM). He will also receive ASTM's Award of Merit in ceremonies May 12 in Gatlinburg for his distinguished service to the cause of voluntary standardization.

His award reads in part: "distinguished productive service to the Society in the development of voluntary standards in the field of Resistance and Thermocouple Thermometry, and for his acknowledged technical leadership in the broader field of metrology."

Johnston, who joined ASTM in 1962, was a founding member of their Committee E-20 on Temperature Measurement. He is also a member of the American National Standards Institute.

question box

If you have questions on company policy, write the Editor, Nuclear Division News *(or telephone your question in, either to the editor, or to your plant contact). Space limitations may require some editing, but pertinent subject matter will not be omitted. Your name will not be used, and you will be given a personal answer if you so desire.*

Equity fund

QUESTION: In view of the total failure of the Equity Fund, why can't the Personal Investment Account provisions be altered to permit those of us who elected to participate in it to switch funds into other options penalty free at any age. I can site a specific example of a commercial fund of similar nature (IDS Variable Annuity) which permits a penalty-free shift once a year as requested by the participant.

ANSWER: Your suggestion that participants be allowed to switch funds between PIA options at any age had been made by others, and effective January 1, 1977, all age restrictions were removed. Additionally, limits on the frequency of movement were greatly broadened, allowing any number of transfers out of the Equity and Fixed Income Funds so long as a 12-month period elapses between each such transfer.

Your description of the Equity Fund as a "total failure" cannot go unchallenged. By its nature, the value of the Fund units can fluctuate with stock market values, and has, in fact, varied to about the same degree as the general market averages. However, over the long term, it has not done badly. An individual investing $100 per month from July, 1973 (the start of the Fund) to December, 1976, would find that the average annual interest earned by the Fixed Income Fund was 8.8%. Had the $100 been invested in the Equity Fund, the average annual interest would have been 5.7%. It is true that the Fixed Income Fund interest would have exceeded the interest from the Equity Fund during this time frame, but an average return of 5.7% which is not taxable until withdrawal, can hardly be described as a "total failure."

Slow bond receipt?

QUESTION: Why does it take so long for one to receive his savings bond from the payroll deduction plan? For example: I have $6.25 deducted from my check weekly. On February 16, 1977, $6.25 was deducted. Yet that money will be retained by someone until March 31, 1977. Why is there this delay?

ANSWER: All U.S. Savings Bonds are purchased at the end of each month, to the extent that the money in an individual's account is adequate to purchase the denomination specified. In your case, for example, if $18.75 was in your account on February 28, a bond would have been purchased then. If, on the other hand, there was not adequate money to purchase one bond, the February 16 and February 23 deductions would have been lumped with the March ones and a bond or bonds would be purchased at the end of March.

We could purchase bonds on a weekly basis, but this would triple the clerical and computer costs. We do not think this can be justified.

Woman bowling director?

QUESTION: Every year since Union Carbide started the All Carbide Mixed Bowling Tournament, the director has been a man. There are many Carbide women bowlers who are well qualified to organize and run a bowling tournament. The directorship of the tournament is rotated each year among the three Oak Ridge plants. Since it will be ORNL's turn in 1978 to provide a director, why not select a woman director from that facility? Also, consideration should be given to alternating men and women directors for the tournament.

ANSWER: Your suggestion is an excellent one. There are many women in our bowling program who would make outstanding directors. Women have taken leadership roles in many recreation program activities, for example: the Carbide Camera Club; the Physical Fitness Program, and the informal volleyball program. The 1978 mixed bowling tournament director has already been selected, but we will select a woman, if possible. in 1979.

Inter-plant mail

QUESTION: When an employee changes an address within the plant, his technical journals, etc., are not forwarded to him. It is my impression that they are thrown away. Couldn't the Mail Department stack them somewhere and let the interested parties sort through to find them?

ANSWER: An employee can make certain that mail is routed to the new location when he/she moves by filling out a Change of Address Form (UCN-4488) and sending it to the Mail Department. Technical journals are normally not discarded. Specific problems regarding mail delivery can best be resolved by discussing the matter with your installation's mail room supervisor.

Smith named security head

77-1751

Smith

Shields W. Smith has been named head of ORNL's Security Department by John W. Gillette, director of the Laboratory Protection Division. Smith replaces Gene G. Conner who retired March 31.

Smith's responsibilities include the supervision of ORNL's security, including badges, visitor passes, documents and locks, and investigation of security breaches or stolen articles.

A native of Concord, Tenn., Smith worked as an investigator for the FBI 9½ years before coming to ORNL in December of last year. He also taught physical education and coached football at Harriman High School in Roane County.

The new department head received his bachelor's degree in education from Carson Newman College in Jefferson City and his master's degree from the University of Tennessee at Knoxville.

Smith resides with his wife, Pattye, and children, Shields Jr., Tommy, Kathy and Tracye, at 412 Russfield Drive in Concord.

safety scoreboard

Time worked without a lost-time accident through May 5:

Paducah	78 Days	893,580 Man-Hours
ORGDP	7 Days	244,600 Man-Hours
Y-12 Plant	79 Days	2,342,000 Man-Hours
ORNL	10 Days	203,000 Man-Hours

New supervisors named at ORGDP

77-1775

Ferguson

77-1776

Jackson

77-1774

Whited

Three new supervisors have been named at ORGDP, Jimmy L. Ferguson and Ronnie F. Jackson, in Maintenance; and Robert D. Whited in Barrier Manufacturing.

Ferguson, a native of Asheville, holds an applied science and associates degree from Western Carolina College. He has been with Union Carbide since 1970, first working in Y-12 as an electrician, transferring to ORGDP in 1973.

He and his wife, Gail, live at 14 Lindale Lane, Oak Ridge. They have a son, Royce.

Jackson was born in Morgan County and attended Middle Tennessee State University. He also has a certificate in electronics from Harriman Vocational School. He worked with Ceilheat and Sprague Electric before coming to ORGDP three years ago.

He and his wife, the former Diane Henley, live at 208 Scenic Drive, Oak Ridge.

Whited, a native of Oak Ridge, attended the University of Tennessee before joining ORGDP in 1975.

He and his wife, the former Sharon Hurst, live at 8237 Rising Fawn Drive, Knoxville. They have a son, Robert.

wanted

ORNL

RIDERS WANTED from Jackson Square area in Oak Ridge to any portal, straight days, any shift. Gary Davidoff, plant phone 3-6200, home phone 482-5341.

CAR POOL MEMBERS from areas of West Outer, Waddell, Pennsylvania or Hillside, Oak Ridge, to East Portal, 8:15 to 4:45. Tom Burnett, plant phone 3-6939, home phone 483-1975.

Y-12 PLANT

JOIN or form car pool from Norwood section, Knoxville, to any portal, straight day. S. T. Benton, plant phone 3-5615, home phone Knoxville 687-9496.

JOIN car pool from vicinity of West Town Garden Apartments, Knoxville, to North Portal, straight day. Floyd Baker, plant phone 3-7867, home phone Knoxville 693-6934.

JOIN car pool from East Village, Oak Ridge, to East, North or Biology portals, straight day. Gary Brandon, plant phone 3-7911, home phone Oak Ridge 483-0754.

safe thinking . . .

HEADLIGHT CHECK — A wall or show window makes a good place to check headlights and directional signals to see that they are on and functioning properly.

SHOVEL SKID — A shovel can be used as a skid to move loads without lifting or carrying, lessening the risk of back injury.

Red Cross sets bloodmobile visit in Oak Ridge May 25, 26

Do you have a friend who has had surgery recently? Or, would you like to help somebody you don't even know? Every eight minutes a hospitalized patient somewhere needs a blood transfusion. The availability of that person's blood type immediately, when it is needed, makes the difference between life and death. What better reason is there for you to give a unit of blood to a person in need now?

It takes only seven minutes for the actual blood donation; only 45 minutes from registration to the time when you are seated in the canteen enjoying coffee and cookies in the company of other good-hearted people.

Think about this too . . . The Red Cross volunteer blood program means that some day, when you or a family member need blood, that precious fluid will be available to meet your emergency.

Your donation of a unit of blood helps to assure that blood will be available when it is needed.

The Red Cross Bloodmobile will visit Oak Ridge (at the Civic Center) Wednesday and Thursday, May 25, 26. The hours on Wednesday are from 3 to 9 p.m. . . . on Thursday from noon to 6 p.m.

Remember life can stop or go . . . but you can keep it going for yourself and others by becoming a blood donor through the Red Cross.

Five promoted at Paducah plant

The Paducah Gaseous Diffusion Plant has announced the promotion of five employees. Beverly A. Boyd and Leslie F. Kerr have been named inspectors in the Metallurgical Engineering and Inspection Department. Barbara K. Hook has been promoted to traffic specialist in the Finance and Materials Division; and Cephus Robertson and Beth Devillez become maintenance supervisors.

A native of Louisville, Boyd has been with Union Carbide two years. She and her husband, Jim, live at Route 1, West Paducah. They have five children, Janet, Vernon, Tony, Kim and Brad.

Devillez joined Union Carbide in 1951 as a secretary in the Operations Division. In 1972, she became an administrative assistant to the plant manager. She holds an associate degree from Paducah Community College and is a member of the Paducah-Kentucky Lake Chapter of the National Secretaries Association. She and her husband, Henry, also a Union Carbide employee, live at Route 1, Paducah. They have two children, Scott and Carol.

Hook joined Union Carbide in 1959, following employment with Western Baptist Hospital. She completed training in 1974 from the College of Advanced Traffic in Chicago. She and her husband, Harry, live in Kevil.

Kerr, a native of Cairo, Ill., joined Union Carbide two years ago as a maintenance mechanic. He and his wife, Joe Ellen, live on South Oak in Mounds, Ill.

Robertson has been a machinist at the Paducah facility for 11 years. He was formerly with Caterpillar Tractor Company in Peoria. He and his wife, Martha, live in Kevil.

4701

Boyd

Devillez

Hook

Kerr

Robertson

Summer housing needed for students, co-ops

Temporary housing for summer students and co-opping employees is needed in the local area around Oak Ridge.

If you have rooms or housing, contact Kathy Rick, Central Employment, extension 3-4442.

wanted . . .

ORGDP

RIDE or will join car pool from West Knoxville area, Middlebrook Pike, to Portal 3, D Shift. Kenneth Shell, plant phone 3-9291, home phone Knoxville 690-0836.

ORNL

RIDE WANTED from Fountain City (Ridgecrest Drive, Cedar Lane area) to North Portal, 8-4:30 shift. Becky, plant phone 3-0297.

Nuclear Division News

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PADUCAH
Keith Bryant, Bell 369

UNION CARBIDE

Member, INTERNATIONAL ASSOCIATION OF BUSINESS COMMUNICATORS

PGDP fishing . . .

The water rhythmically laps against the sides of a gently swaying john boat, and the sun's rays reach further and further skyward. As the day wanes and the boating population thins, a slight tug is felt on the line descending into the water directly in front of an avid Carbide fisherman. That's the scene that keeps 'em going back for that prize-winning catch!

The first specie contest for bass and crappie in the Annual Fishing Contest ended April 15 with a 12-man list of happy fishermen and some nice looking catches.

William Henderson topped the bass category with a scale-shaking 8 lb. 1 oz. bass. He was followed by Thomas Herrold's 7 lb. 3 oz. catch for second place honors and a 6 lb. 5 oz. bass snagged by Charles V. Allen filled the number 3 spot.

Edwin Jamison's 2 lb. 12 oz. crappie took the blue ribbon in that category. Roy Holladay captured second place with a 2 lb. 8 oz. contender and Kenneth Owens reeled in a close-running 2 lb. 7 oz. crappie to take third place. The next specie deadline is May 30.

Remember, you don't have to be a winner to enjoy PGDP fishing! All non-winning entrants are eligible for a drawing to be held at the season's end. So, heads up discouraged casters — you're still in the running!

retirements

77-1777

Nathan N. Landay
ORGDP Maintenance
31 years service

N77-48

Campbell R. King
Y-12 Employment
31 years service

1705.71

Edward E. McCombs
Chemical Technology, ORNL
30 years service

N77-45

John Thomson
Y-12 Management Information System
27 years service

N77-49

Frank J. Blair
Y-12 Process Maintenance
27 years service

Desma H. Blair
Y-12 Shifts Superintendents
28 years service

Bimonthly Colloquium

The next Bimonthly Colloquium will be held at ORNL's Central Auditorium at 3:30 p.m., Tuesday, May 17, with closed circuit television in the East Auditorium.

David E. Bartine, principal investigator of the non-proliferation thorium assessment study at ORNL, Neutron Physics Division, will discuss program activities directed toward reactor physics evaluation of the non-proliferation potential of various alternate fuel cycles. The title of his talk will be *Reactor Physics Aspects of Non-Proliferation Studies.*

Following the technical presentation, Laboratory Director Herman Postma will answer questions from the floor. Those not wishing to ask questions from the floor may submit signed questions in advance to G.F. Flanagan, Building 6025, ORNL.

Three assignments made in Employee Relations staff

Several changes have been announced in the employee relations functions of the Nuclear Division.

W. Charles Kuykendall has been named Employee Relations Department Superintendent at the Paducah Gaseous Diffusion Plant; Robert D. Worrell succeeds Kuykendall as head of Central Employment; and JoEllen M. Meredith will succeed Worrell as Wage and Salary Administration head at ORNL. The appointments are effective August 1.

W. Charles Kuykendall

Kuykendall will be responsible for Wage and Salary Administration, Labor Relations, Benefit Plans and Retirement Counseling, and the Fire, Guard and Security organizations at the Paducah Plant.

A native of Wickes, Ark., Kuykendall has been with Union Carbide since 1953, when he joined the technical staff at ORGDP, after serving two years in the Army's Chemical Corps. He holds a B.S. in chemistry from Henderson State College, and an M.S. from the University of Tennessee in industrial management. He transferred to the Y-12 Plant in 1960, and held various staff positions in the Technical and Fabrication Divisions. In 1967 Kuykendall was named manager of Central Employment.

In 1975, he was granted a leave of absence to work with the International Atomic Energy Agency with the responsibility of the manpower program in Brazil's nuclear technology and power development.

Kuykendall is married to the former Sandra Walker. They have three sons and a daughter and live on Shaffer Road in Knox County.

Worrell will be transferring to the Nuclear Division Central Employee Relations staff as manager, with responsibility for recruiting technical employees in the four Nuclear Division installations. Central Employment also coordinates applications for all Division job levels, as well as manages the co-op and off-site recruiting programs.

In 1960 Worrell joined Union Carbide in Y-12's Employment Department. He has also worked as both the analyst and superintendent in ORNL's Labor Relations Department. He is presently wage and salary administrator at ORNL, with additional responsibility for the administration of Benefit Plans.

Worrell received a B.S. in industrial management from the University of Boulder in Colorado in 1955, and has done work on his master's degree at the University of Tennessee, Knoxville.

Worrell is a member of the Tennessee Valley Personnel Association and a lieutenant colonel in the Air National Guard. He lives at 10501 Blakewood Drive, Concord.

As ORNL salary administrator, Meredith will have additional responsibility for Individual Consultant Subcontract administration and Personnel Records.

JoEllen M. Meredith

Robert D. Worrell

She joined ORNL's Employee Relations Division in 1973 as an industrial relations representative. Meredith previously worked as a tax auditor for the Internal Revenue Service and as an administrative counselor for Dunhill of Knoxville, Inc.

In 1970 she received a B.S. in business administration from East Tennessee State University and an M.B.A. in 1971.

Meredith, her husband, John, and a daughter, Lauren live at Route 6, Milligan Heights, Clinton.

anniversaries

PADUCAH

25 YEARS

James M. Jackson, Peter Harrison, Joseph S. Lyell, Edward A. Kohler Jr., Jesse W. Shelbourne and Jackie E. McCaw.

20 YEARS

Charles A. Carnes.

Y-12 PLANT

30 YEARS

Howard R. Olka, 9215 Rolling Mill; Ava J. Lyons, Laboratory Operations; Frances M. Smith, Accounting and Budget; and Winfred C. Collins, General Shops.

25 YEARS

Arville G. Hardwick and John S. McMurray.

20 YEARS

Billie E. Jolley and Anna A. Perry.

ORGDP

30 YEARS

William O. Gentry, Instrument and Quality Assurance Development; Kermit E. Short, Accounting Division; Jewel C. Sweat, Computer Sciences Division; and Mildred E. Freytag, Purchasing Division.

25 YEARS

Paul L. Arnwine, Martha B. Roberts, Howard A. Phillips, Grant W. Sitzler, Edward Von Halle, James V. Green, Kenneth L. Smith, James T. Blackmon Jr. and Ray C. Keever.

20 YEARS

George M. Doyle.

ORNL

30 YEARS

Robert L. Laughlin, Plant and Equipment; Edward R. Johns, Chemical Technology; William R. Gall, Engineering; Elmore A. Wallace, Finance and Materials; Bruce H. Mynatt, Plant and Equipment; Amos H. Marshall, Analytical Chemistry; Willis H. Campbell, Operations; Arnold L. Harrod, Analytical Chemistry; and Robert L. Bailey, Chemical Technology.

25 YEARS

Carl L. Fox, Frank V. Hensley, George T. Chapman, Ted M. Newman, Glynn E. Angel and Roy G. Cardwell Jr.

Garnett V. Justice, Hubert H. Caudill, Edmond C. Fearnow, Charles E. Stanley, Forrest W. Schmollinger, Ben M. Benkamin, Fred A. Heddleson and Hugh A. Bishop.

20 YEARS

James R. Distefano and Ann S. Klein.

3,564 patents contributed to ERDA by Division staffers

PATENTS RECOGNIZED—A total of 3,564 patents have been recognized by ERDA, contributed by Nuclear Division scientists, engineers and technicians, President Roger F. Hibbs tells luncheon guests gathered to recognize 1976 accomplishments. The group was honored recently at a luncheon in Knoxville.

Scientists, engineers and technicians of the Nuclear Division were honored April 25 with a patent luncheon at the Sheraton Executive Inn, Knoxville. Edwin W. Luedeka, patent attorney, spoke to the inventors, along with Roger F. Hibbs, President of the Nuclear Division.

Approximately 5,000 technical documents originating in the Division were reviewed in 1976 for inventive items. More than 350 such items were reported to the patent section of the Law Department for further investigation.

One hundred forty-three inventions were disclosed to ERDA in 1976, bringing the total number of inventions reported by Union Carbide to 3,564. Last year ERDA filed 68 patent applications in this country and 15 in 10 other countries on inventions reported by the Nuclear Division. A total of 110 employees received patent honors in 1976.

Inventions arising from the diffusion plants include barrier improvements, cascade improvement equipment improvements, new cascade flow arrangements and improved UF_6 handling techniques. Inventions from the Separations Systems include improvements in mechanical equipment and electronic circuitry for control of equipment and process. Inventions at the Y-12 Plant include innovations in carbon and graphite processing, ultra-precision machining (including laser mirror fabrication and improvements in alloys) and metallurgical processing. Inventions at ORNL include innovations in reactor development, advanced fuel development, fusion research, nuclear fuel reprocessing and alternate energy sources.

recreationotes

WINNING SWING—Steve Fenwick, Paducah Plant, exhibits a similar swing to the one which credited him with a hole-in-one April 13 at the Calvert City Country Club. Steve scored that once in a lifetime shot on number 6, par-3 hole at 165 yards. A five-year golfer, Steve didn't even see the ball go in but he'll never forget that day or that drive!

Y-12 bowling . . .

The Eightballs moved into a handy lead of the Classic, as the weeks draw down to the wire.

The C League still belongs to the Mini-Strikes, two in front of the Anodes. J.J. Henry's 266 scratch, 295 handicap game is still high for singles . . . and Bob Carmack's 636/711 for series.

ORNL golf . . .

Bill Martin was the big hero at ORNL's race at Wallace Hills, putting a 74 card up for the winner. Carl Coley and J. Hudson, along with A. Wright, all tied for second place with a 75.

Ray Walker, 78; and Bill Byrd, 79, were handicap lows in the first flight.

The second division went to Jim Jackson, 76; and Larry Lane, 83. Handicap lows were registered by Wes Hightower, 82; and W. Plunkett, 87.

Division three went to Gene Holt and Al Singletary, tied with 86; and Frank O'Donnell, 88. C. Hensley, 92; and M. Marshall, 91; were handicap lows in this flight.

Hi power rifle league . . .

Larry Weston, ORNL, took the second Carbide High Power Rifle shoot-out with a 479, out of a possible 500. Y-12's Jack Huff placed second with a 477; followed by Y-12er Bill Galyon with a 463.

ORNL bowling . . .

The Knuckleheads took the last half of the C League recently, and were facing the Damagers for league championship. Fred Kitts, Cellar Dwellers, posted a 670 handicap series in late April to lead individuals in the league.

The Bowling Aces (Jean Bangham, Carolyn Gooch, Mary Long and Charlene Webster) took the crown in the ORNL Ladies League, beating out the Mousechasers by some nine points. High bowlers for the year were Elizabeth Foster, with a 678 handicap series; and Laura Walker with a 269 single.

The Zots grabbed the lead in the A League, edging the Ten Pins away from the top rung. The Dynamics' Hawkins rolled a 227 single game to lead bowlers late in April.

Bryson's hole-in-one . . .

Jim Bryson, ORGDP Wage and Salary Administration, aced number 17 at the Oak Ridge Country Club April 23. The par-3, 177-yard drive was Jim's first hole-in-one.

Tee-Off Time Application for May 21

(Check Appropriate Plant)

☐ ORGDP — Wallace Hills
☐ Y-12 — Dead Horse Lake
☐ ORNL — Whittle Springs

_____ LEADER _____

_____ Phone Bldg.

_____

_____ _____
Time Preferred

COMPLETE AND RETURN TO YOUR RECREATION OFFICE

Entries must be received prior to drawing on May 18, 2 p.m.
Y-12 — Building 9711-5

Tee-off times for all tournaments will be drawn on Wednesdays prior to each Saturday's tournament. Golfers are responsible for reserving their own carts by contacting the pro shop following drawing for tee-off times. Please call the Recreation Department, 3-5833, after 3 p.m. Wednesday for time.

Beginning Swimming Instruction—Paducah

EMPLOYEE'S NAME _____

Plant Address _____ Bldg. PAX Phone _____

Home Address _____ Home Phone _____

List Student(s) name and age:

_____ _____

_____ _____

_____ _____

Two separate sessions are slated for instruction: June 11, 18 and 25 and a second program beginning July 9 and ending August 13. The remaining Saturday's will offer open swimming.

The pool will be available to Carbide employees and their families from June 11 to August 20 from 10:30 to 11:30 a.m. for their swimming pleasure.

Classes Available:

1) Adult beginners
2) Teenage beginners
3) Pre-teenage beginners
   11-12 years
   9-10 years
   6-8 years
4) Mom and Tot - 5 and under

Mail to: Darlene McPherson
Recreation Department
Union Carbide Corp.
P.O. Box 494
Paducah, KY 42001

FIRST COME - FIRST SERVED!

Paducah swimming begins at Noble Park . . .

Paducah employees may enjoy swimming at Noble Park, beginning June 11. Supervised swimming will be available to all employees and their families from 10:30 to 11:30 through August 11.

Another important aspect of the Paducah swimming program is instruction. The first session will last for three weeks, from June 11-25. A second session will be held July 9-August 13. The separate programs are designed to accommodate participants who are unable to attend the entire summer.

Due to expected heavy enrollment, only the first 190 entrants will be accepted. Plan to attend regularly so that the provided services may be used to their fullest capacity. The registration form below contains instructions on how to enter.

COLLECTS PRIZE—Grover Cain, ORNL, is one of those rare Carbiders to score a hole-in-one in a sponsored tournament . . . as he aced the number 3 hole at Wallace Hills April 30, using a six-iron. He was in a foursome with Charlie Guinn, Bill Martin and Jim Anglin.

Paducah golf . . .

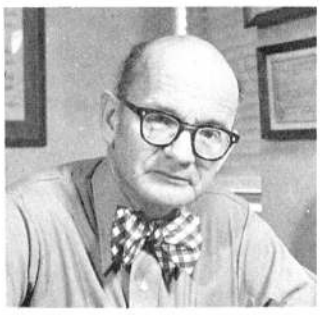
Golf is now in full "swing" at the Paducah plant, kicked off by a Mixed Scrabble held April 23 at the Paxton Park Golf Course in Paducah. Though the weather was bleak, the spirit of the season was aglow as some 75 golfers stepped up to the tee during the morning hours. The April Scrabble was the first of eight scheduled tourneys for 1977.

The team of Gene White, Max Sacharnoski, Mike Mazzone and Dot Simmons claimed the "Early Bird" victory title with an impressive six under par on the par 71 course. Harry Hook led team members Tommy Pierce, Bobby Gifford and Edith Clymer to a second place slot, shooting a three under par.

The concerted efforts of Greg Clark, Archie Miller, Dale Bewley and Lois McCann with their two under par edged them into third place over the fourth place foursome of Dave Barclay, L. S. Fenwick, John Hopkins and Mary Andrews.

Tentative dates for upcoming scrabbles are as follows: May 14, Mayfield Country Club; June 25, Calvert City Country Club; July 23, Rolling Hills Country Club; August 27, Paxton Park Golf Course; September 10, Mayfield Country Club; October 8, Calvert City Country Club and a nine-hole "Sno-Bird" in November or December.

More Recreationotes are found on page 7



Effect of sunlight on skin

by T. A. Lincoln, M.D.

(Editor's Note: Dr. Lincoln alternates his regular column with "The Medicine Chest," where he answers questions from employees concerning health in general. Questions are handled in strict confidence, as they are handled in our Question Box. Just address your question to "Medicine Chest," NUCLEAR DIVISION NEWS, Building 9704-2, Stop 20, Y-12, or call the news editor in your plant, and give him or her your question on the telephone.)

Although sunlight makes flowers bloom and vegetables grow, it has few favorable effects on human skin. It is valuable in preventing rickets in children on Vitamin D deficient diets, and it sometimes helps psoriasis, but that is about all. In the past 5 to 10 years some interesting new insights into the damaging effects of ultraviolet light on the skin have been discovered.

Ultraviolet light

The radiation from the sun which reaches the earth's surface is filtered by atmospheric ozone and water vapor. The ozone reduces the amount of short wave ultraviolet radiation, and moisture reduces the amount of long wave length infra-red radiation. The ultraviolet light which is most damaging to the skin has a wave length of 280-320 nanometers (a nanometer (nm) is one-billionth of a meter in length) and is frequently referred to as ultraviolet B (UV-B).

Longer wave ultraviolet light with a wave length of 320-400 nm — called UV-A — used to be considered relatively harmless to the skin. For example, UV of 365 nm is less than one percent as effective in causing sunburn as UV of 297 nm. It is now realized that UV-A is a potent stimulus for tanning and for several of the phototoxic or photoallergic reactions.

Some drugs can cause photosensitization. As a result, people taking them occasionally develop a severe sunburn after rather brief exposures to sunlight. It has also been shown that UV-A can enhance the known skin cancer-producing effect of UV-B. UV-A has a striking additive effect on sunburn damage. People exposed to sunlight in the early morning — when it is more filtered by the atmosphere and has less UV-B — make themselves much more vulnerable to the direct midday sunlight, which is rich in UV-B.

Prolonged exposure

Prolonged exposure to the sun leads to freckles, tanning, thickening, wrinkling, premature aging and sometimes cancer of the skin. The effect is greatest in whites of northern European or Celtic ancestry. It had long been thought to be due entirely to a lack of pigment in the skin. There is now known also to be another genetic component. Nevertheless, blonds or redheads who have fair complexions, do not tan readily and sunburn easily are especially susceptible.

Olive-skinned southern Europeans and brunettes who tan easily are less vulnerable to skin cancer, but they are, by no means, completely protected. Skin cancer is rare in blacks, apparently because the rich pigmentation prevents the penetration of the UV to the basal cell layer of the skin where the greatest damage occurs.

UV light causes structural damage to DNA, the genetic material in cells. It produces mutations and transforms cells. Although it has been shown that human cells possess enzymatic mechanisms for repair of the DNA damage, they don't always work. The UV damage is called a thymidine dimer, which is a bridge structure between neighboring thymidine molecules in the same strand of the long, complicated DNA structure. The enzymes have to remove this dimer and restore the gap.

Genetic links?

What is fascinating is that by measuring the incorporation of radioactively labeled thymidine in cultured white blood cells, it can be shown that patients who have skin cancers and precancerous keratoses (a horny, scaley growth on the skin) often have a defect in their repair mechanism, which is probably genetic in origin.

A group of investigators at Harvard also have recently found that patients with skin cancers on exposed parts of their skin have a more prolonged reddening of skin on their buttocks after exposure to UV-B than people who have never had a skin cancer. These genetic differences could lead to tests to identify individuals who are susceptible to skin cancer and, therefore, should avoid all unnecessary sun exposure. It is clear that some fair-complexioned people never develop skin cancer in spite of long exposure to sunlight, so a test would be welcome. Many people are extremely reluctant to protect themselves, but might do so if they knew they were at increased risk.

The possibility of an effective treatment for acute painful sunburn is being investigated. A single topical application of indomethacin, a drug used to treat arthritis and rheumatism, appears to relieve the redness, elevated skin temperature and pain associated with an acute sunburn. It does not prevent the blistering and peeling. The possible toxic side effects and the optimum strength of the solution or ointment will have to be determined and the use approved by the Food and Drug Administration. Nevertheless, an effective new treatment for painful sunburn may be just around the corner.

Skin cancer

Skin cancer is by far the most common cancer. Since it is often treated in the physician's office and is only rarely fatal, reliable incidence data are not available. There are several hundred new cases per 100,000 adults per year. Melanomas or malignant moles, also influenced by sun exposure, are not as common (three to eight new cases per 100,000 per year) but are more frequently fatal. The incidence of skin cancer is much higher in the South than in the North and is much more common in people who work outdoors. Recreational exposure is becoming an increasingly important factor.

The obvious advice is to stay out of the sun during the middle of the day, especially if the wind is blowing or you are out on the water. Use a sun screen if you must expose yourself. A five percent para-aminobenzoic acid solution in alcohol is highly effective and can be splashed on the face, neck, ears, hands and wrists every morning like an aftershave lotion.

Possible cancer in middle or old age may not motivate young people to be careful. They should remember, however, that sun also ages, thickens and wrinkles beautiful young skin. Middle-aged people need to protect their already damaged skin.

2458-76

Engineering picnic: Scenes from '76

ENGINEERING SUMMER PICNIC—The Nuclear Division's Annual Engineering Picnic is the upcoming event for all Engineering Division personnel, family and friends. Activities are slated for Saturday, June 4, from 1 until 8 p.m. at Clark Center Recreation Park in Oak Ridge. Festivities include plenty of food, fun and entertainment for all ages, as shown by above photo from last year. Tickets can be obtained from engineering departmental secretaries.

ORGDP golf . . .

Alvin Boatwright, a familiar sight in ORGDP golf circles, repeats as a tournament winner, taking the Whittle Springs context, along with Tony Chagolla and Bill Bovee. All three men had two-over-par, for a 74.

Jim Shoemaker and Larry Dean tied for handicap honors in division one, each with a 77; Bob Nier came in second with a 75.

In division two it was Paul Maples and John Nicol, both with an 82, and N. Howell and P. Summers, each with 83.

Handicap lows went to another Jim Shoemaker and M. Messer, each with 84.

Division three went to Gary McFarland, Ken Winsbor and Ron Meyers, all with 93. Handicap lows went to H. M. Hayes, D. Richardson and J. Crawford, Hays with 95, the others with 97.

Y-12 golf . . .

John Baker tallied a three-under-par score to take Y-12's tournament at the YMCA Center. Sam Cameron parred an even 72.

Handicap lows went to Charley Ferguson, with a 74; Virgil Lovette with a 76, tied with J. Vance.

Division two belonged to Jim Shelton, carding a 75; while Charles Turner and J. D. Collins tied for second honors with 82's.

Handicap lows went to John Sewell with an 84; H. Henderson with an 85. Handicap lows went to Bill McManus, 85; and Perry Bullard, 91.

Carbide bowling . . .

The Hits & Misses edged into first place in the Carbide Family Mixed Bowling League, one in front of the Odd Balls and Challengers. Jack Beams posted a 734 handicap series in April; Winnie Woody a 656.

The Monday Mixed (a new league for Carbiders rolling at Western Plaza for the convenience of Knoxville keglers) sees the Happy Hookers in first place as rolling gets down to earnest. Don Kelso and Shirley Williams led men and women recently in rolling.

BOWLING ORGANIZING

An organizational meeting of the Carbide Family Mixed Bowling League will be held Thursday, May 19, at 7 p.m. at the Tri-County Lanes. Anyone interested in bowling this summer in the men and women league should contact Edith Duckworth, extension 3-3874.

AAAS fellowship awards announced

Three ORNL senior staff members have been named as fellows to the American Association for the Advancement of Science (AAAS) for excellence in scientific research.

Charles F. Baes, Jr., and Charles E. Bamberger, senior staff members in the ORNL Chemistry Division, and Loucas G. Christophorou, senior staff member in the Health Physics Division, received the AAAS award for their contributions to the field of chemical and applied physics research.

AAAS fellowships are awarded to scientists who have produced a body of work on behalf of the advancement of science which is scientifically distinguished or which has high social significance. Nominations are made by colleagues in the same field who submit their candidate's material to the AAAS for consideration.

Baes, a native of Ohio, received the AAAS award for research in the physical chemistry of solvent extraction, molten salt systems and hydrolytic behavior of metallic ions.

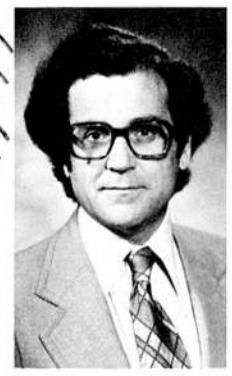
He received his bachelor's degree in chemistry from Rutgers University in New Jersey and his master's and Ph.D. degrees in physical and inorganic chemistry at the University of Southern California. Baes also conducted postdoctoral work in exactive metallurgy at Columbia University School of Mines in New York.

Baes joined the ORNL staff in 1951. He and his wife, Julia, reside with their three children; son Charles E. III, and two daughters, Linda Marie and Sandra Jean, at 102 Berwick Drive in Oak Ridge.

Bamberger, who received the AAAS award for his research in the thermochemical production of hydrogen, beryllium chemistry and molten fluids for nuclear reactors, is a native of Germany but was reared and educated in Argentina, South America.

Bamberger received the American equivalent of the master's and doctorial degrees in chemistry from the University of Buenos Aires in Argentina. He first worked at ORNL in 1961-1963 under an International Atomic Energy Agency fellowship where he conducted research in beryllium chemistry. He returned to ORNL in 1966.

Bamberger and his wife, Gidekel, live with their two sons, Gustavo and Roberto, and daughter, Karen, at 165 Nebraska Street in Oak Ridge.



Christophorou received the AAAS award for his research into the physics of polyatomic molecules, electron-molecule interactions and negative ions.

Originally from Cyprus, Christophorou received his bachelor's degree in physics in Greece and his master's, Ph.D. and Doctor of Science degrees from the University of Manchester in England.

Christophorou joined the ORNL staff in 1963 and is currently a professor of physics at the University of Tennessee. He and his wife, Eratoula, live with their two daughters, Penny and Yianna at 2100 Nebraska Street in Oak Ridge.

division deaths

Sid Cogdell, a member of the Janitorial Department at the Paducah Plant, died April 16 at the Lourdes Hospital in Paducah.

Mr. Cogdell

A native of Cedar Grove, Tenn., he joined Union Carbide in 1955. He and his family lived on Route 2, Noble Road, Paducah.

Survivors include his wife, Karen Cogdell; a daughter, Lawanda Cogdell; and two sons, Dwayne and Kenneth Cogdell. He is also survived by three sisters, Lola White, Adele Williams and Lera Simmons; and one brother, Joe L. Cogdell.

Funeral services were held at the Primitive Baptist Church, Cedar Grove, with burial in the church cemetery.

Dewey J. Nichols, an operator in Y-12's Beta 2 Chemistry Department, died April 24 in a Knoxville hospital.

A native of Culberson, N.C., Mr. Nichols joined Union Carbide in 1944. He served with the U.S. Army prior to that time.

Mr. Nichols

Survivors include his wife, Mary Ann McNutt Nichols, 232 Jefferson Avenue, Oak Ridge; two sons, Charles and David; a daughter, Karen; his mother, Ruby Nichols; a sister, Naomi Watson; and two brothers, W.L. Nichols (employed at ORNL); and Roy Nichols.

Funeral services were held at the Weatherford Mortuary, with burial in Oak Ridge Memorial Park.

The family has requested that any memorials be in the form of gifts to the American Cancer Society.

patents granted . . .

To John D. Sheppard and Long S. Tong, both of ORNL, for "Apparatus for Monitoring Two-Phase Flow."

To Richard H. Stevens, Douglas N. Mashburn and Harold C. Woodall, all of ORGDP, for "Traversing Probe System."

Callaham, Vaughan appointed Division conference assistants

Norma F. Callaham and Sandra F. Vaughan have been named conference assistants in the Laboratory Services Department, Finance and Materials Division, at ORNL, working with Charles E. Normand, conference coordinator.

Callaham and Vaughan work in the Conference Coordination Office located in Room K-233, Building 4500N. This office makes arrangements for all conferences and meetings sponsored by groups in the Nuclear Division as well as some special requests for ORO- ERDA-sponsored meetings.

Conference assistants work with the person in charge, usually the conference chairman, in selecting a site for the meeting, making lodging arrangements for participants; arranging for transportation to and from the conference, if needed; coordinating physical arrangements; and determining the overall conference budget. Once the conference is underway, the assistant is available to insure that the conference runs smoothly.

Norma Callaham, a native of Mississippi, received her bachelor's degree in psychology and pursued graduate work at Mississippi State University. She joined the ORNL staff in 1975 where she worked in the Fusion Energy, Chemical Technology and Director's Divisions as a special assignment secretary. Callaham and her husband, Michael, live at 1117 Woodshire Drive in Knoxville.

Sandra Vaughan, originally from Kentucky, joined the staff in 1970 as a secretary in the Biology Division. She holds a bachelor's degree in history from Southwestern College in Memphis, and has done graduate study at the University of North Carolina and the University of Tennessee. She was certified as a professional secretary (CPS) in 1976.

Vaughan and her husband, Gerald, live at Gallaher Ferry Drive in Lenoir City.

safe thinking . . .

BEE STINGS — Meat tenderizer is excellent first aid for bee stings. Just make a paste with water (a quarter-teaspoon of tenderizer and a teaspoon or two of water) and apply.

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